

I am a licensed professional engineer and I am board certified in noise control engineering. I was on the faculty of Columbia University and I have presented papers at international acoustical meetings. Within the past two years I have conducted an environmental noise survey in residential areas near LaGuardia Airport in New York City. My readings showed excessive day-night levels. At the western border of the airport I measured, inside a residence, a sound level of 140 dB(A) which is around the threshold of pain. This represents an unhealthy aircraft noise emission. In addition more than 90% of the acoustic energy was below 500 Hz which is not included in the "A" weighting that characterizes your proposed requirements. The low frequency energy has pernicious physical effects and it causes structural damage. The Stage 4 requirements should aim for a reduction of 20 db(A) even though the acoustic emission would still be at an unhealthy level. Attention should be given to the low frequencies which, according to Lighthill's Law, increase with the seventh power of the flow velocity. Engine design should aim to diminish the flow velocity.